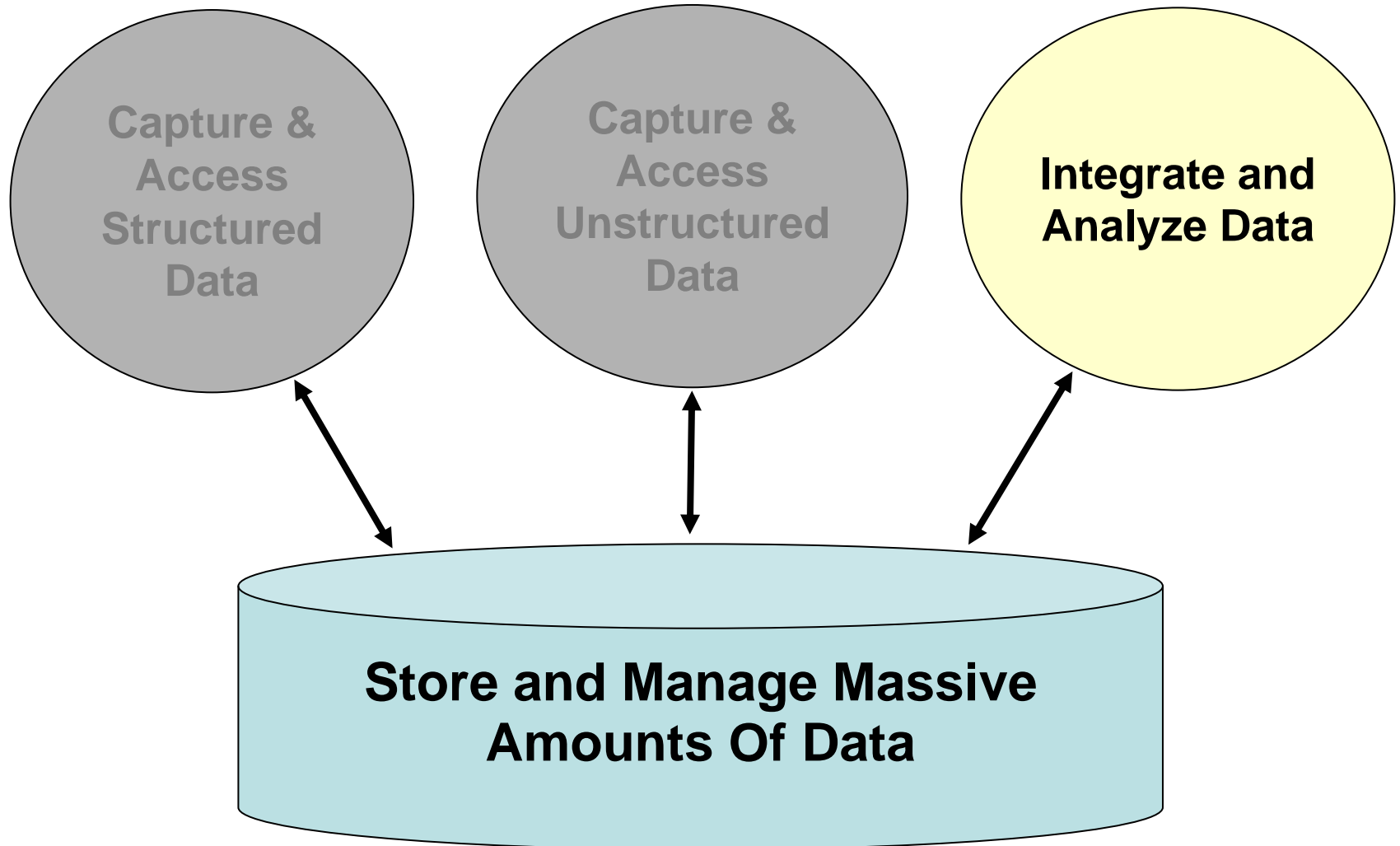




# **System z Enables Solutions For A Smarter Planet**

Utilizing IBM Information Management Software And System z  
To Make Smarter Business Decisions

# New Intelligence Can Deliver Even More Business Value



# Without New Intelligence Business Decisions Can Be Suspect...

The mortgage line of business is doing well. Our late payment rates are very low.



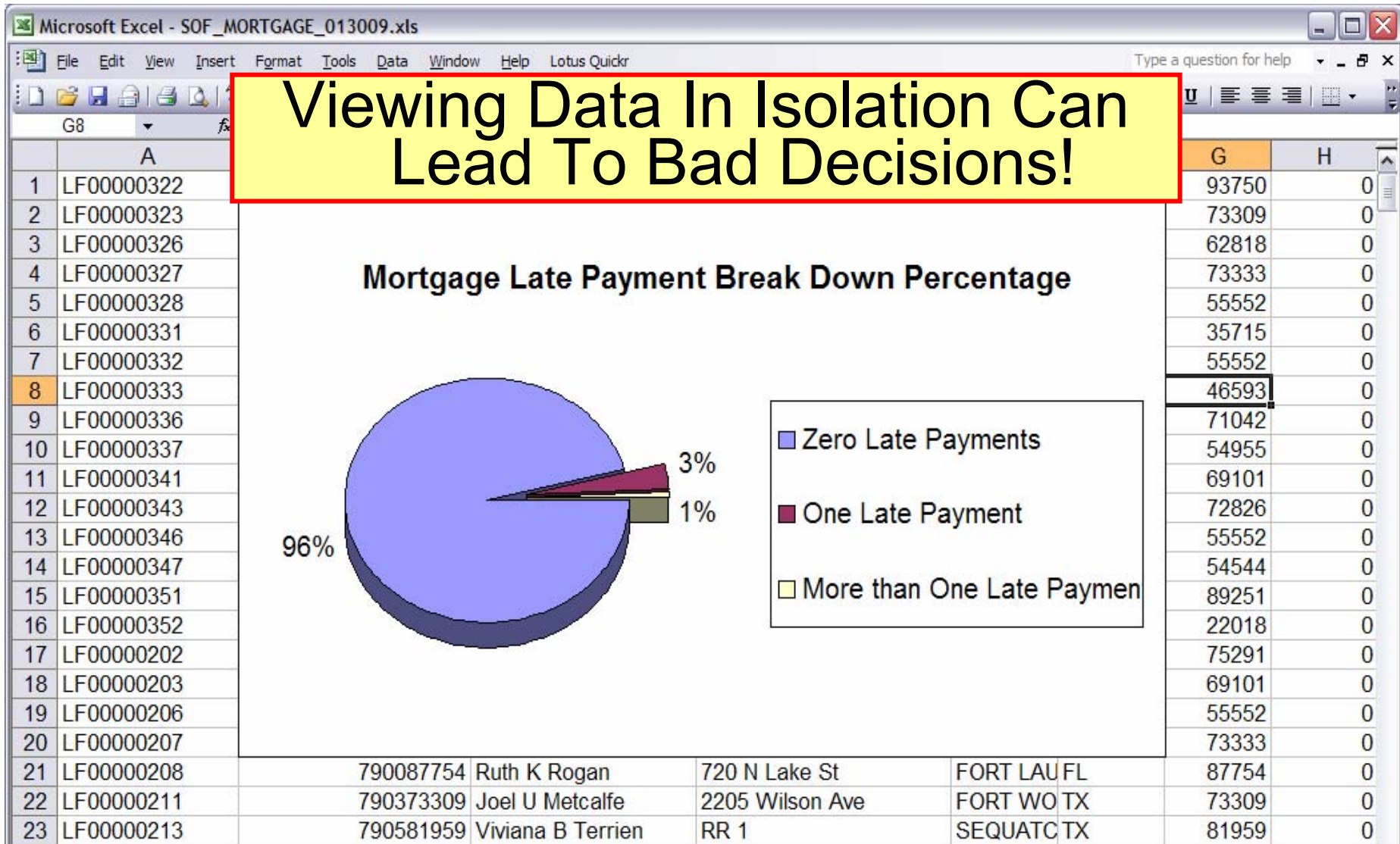
**Mortgage Line of Business  
VP**

Then why are other areas of our business seeing problems...



**Service Oriented Finance  
CEO**

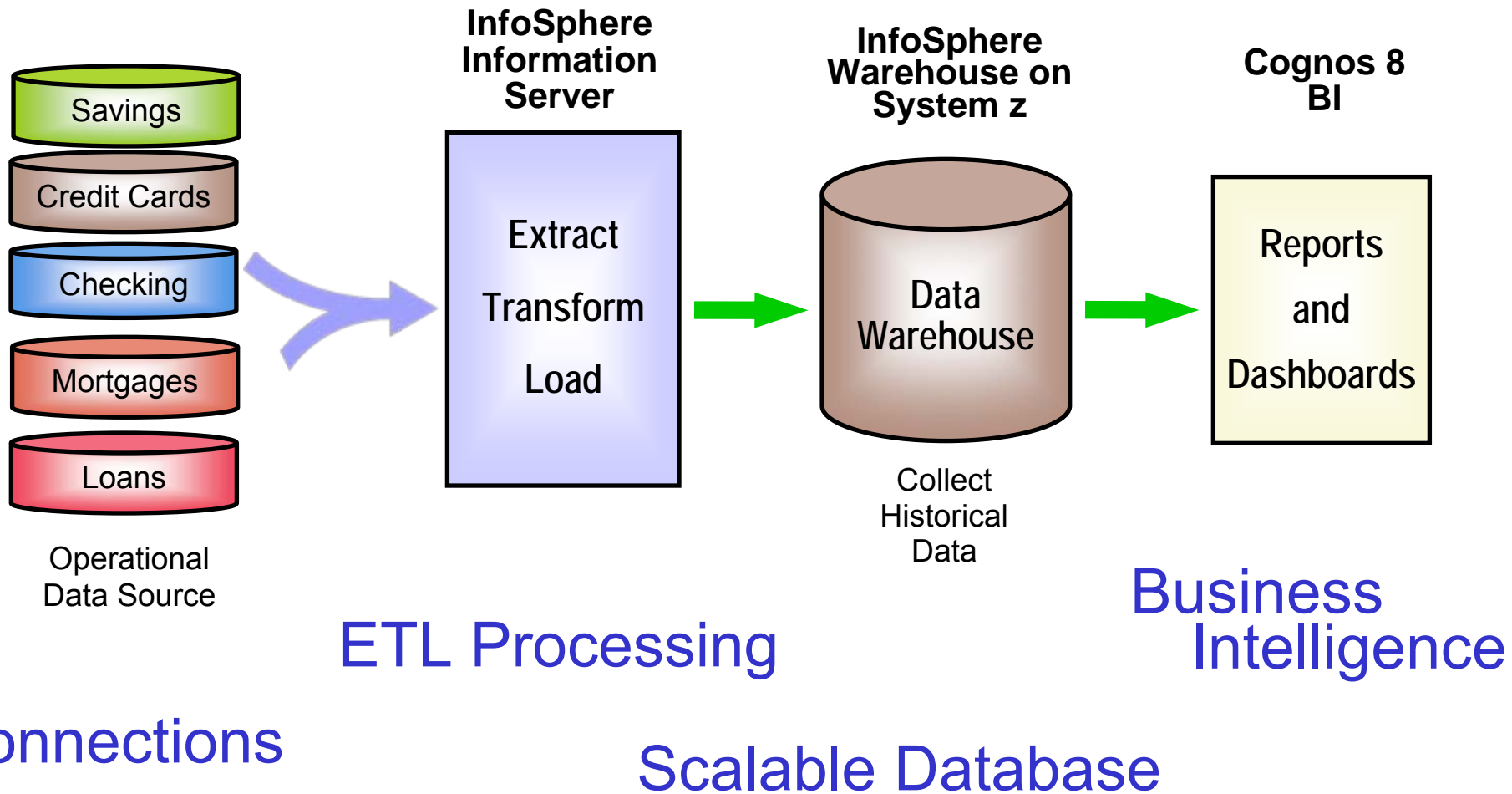
# Isolated Customer Information Leads To An Incomplete View Of The Business



# Service Oriented Finance Needs A Complete View Of Their Customers

- **Problem:** Segmented lines of business store their data in isolated silos
  - ▶ Banking, Credit Cards, Mortgage, Consumer Loans
- **Requirement:** Identify customer trends faster by viewing data from across all areas of business
- **Solution:** Create new intelligence by building an enterprise data warehouse containing a complete view of customer information

# Create New Intelligence With IBM Information Management Software



# Industry Data Models Help You Get Started

Where do we start?



**Service Oriented Finance  
CIO**

IBM industry data models can help you get started quickly.



**IBM**

# IBM Industry Data Models Accelerate Your Data Warehouse Solution

- Industry Data Models are:
  - ▶ Best practices from over 400 IBM clients
  - ▶ Built on InfoSphere Information Server and InfoSphere Data Architect
  
- Industry Data Models include:
  - ▶ Enterprise Data Warehouse (EDW) Model
  - ▶ Business Terminology Data Model
  - ▶ Business Solution Templates (BST)
  
- Industry Data Model Business Benefits
  - ▶ 83% report their Data Warehouse is better aligned with business needs
  - ▶ Over 50% report that businesses are now getting the information they want
  
- Industry Data Model Development Benefits
  - ▶ 15-20% cost savings to build the warehouse
  - ▶ 20-25% decrease in the time spent in design phase
  - ▶ 30-40% decrease in time spent in the modeling phase

**Source: Hurwitz**



# InfoSphere Warehouse on System z Is An Excellent Base For Your Data Warehouse

- Based on DB2 for z/OS
- Superior scalability due to System z sysplex exploitation
- Parallel queries, Materialized Query Table, Star Join Enhancements optimize performance
- Near continuous on-line availability
- System z I/O bandwidth benefits warehouse performance
- Data compression beats Oracle
- Proven security
- zIIP exploitation achieves lowest cost
- Benefits from built-in storage virtualization

# Rapid Data Integration With InfoSphere Information Server

Data integration has many complexities; Metadata, ETL, connectivity, performance, etc. How can we simplify our approach?



**Service Oriented Finance  
CIO**

IBM has a consolidated platform that overcomes the difficulties of data integration. Let me tell you about InfoSphere Information Server



**IBM**

# IBM InfoSphere Information Server

A consolidated platform for information integration

## IBM InfoSphere Information Server for System z

### Understand



Discover, model, and govern information structure and content

### Cleanse



Standardize, merge, and correct information

### Transform



Combine and restructure information for new uses

### Deliver



Replicate, virtualize and move information for in-line delivery

## Platform Services

### Parallel Processing Services



### Connectivity Services



### Metadata Services



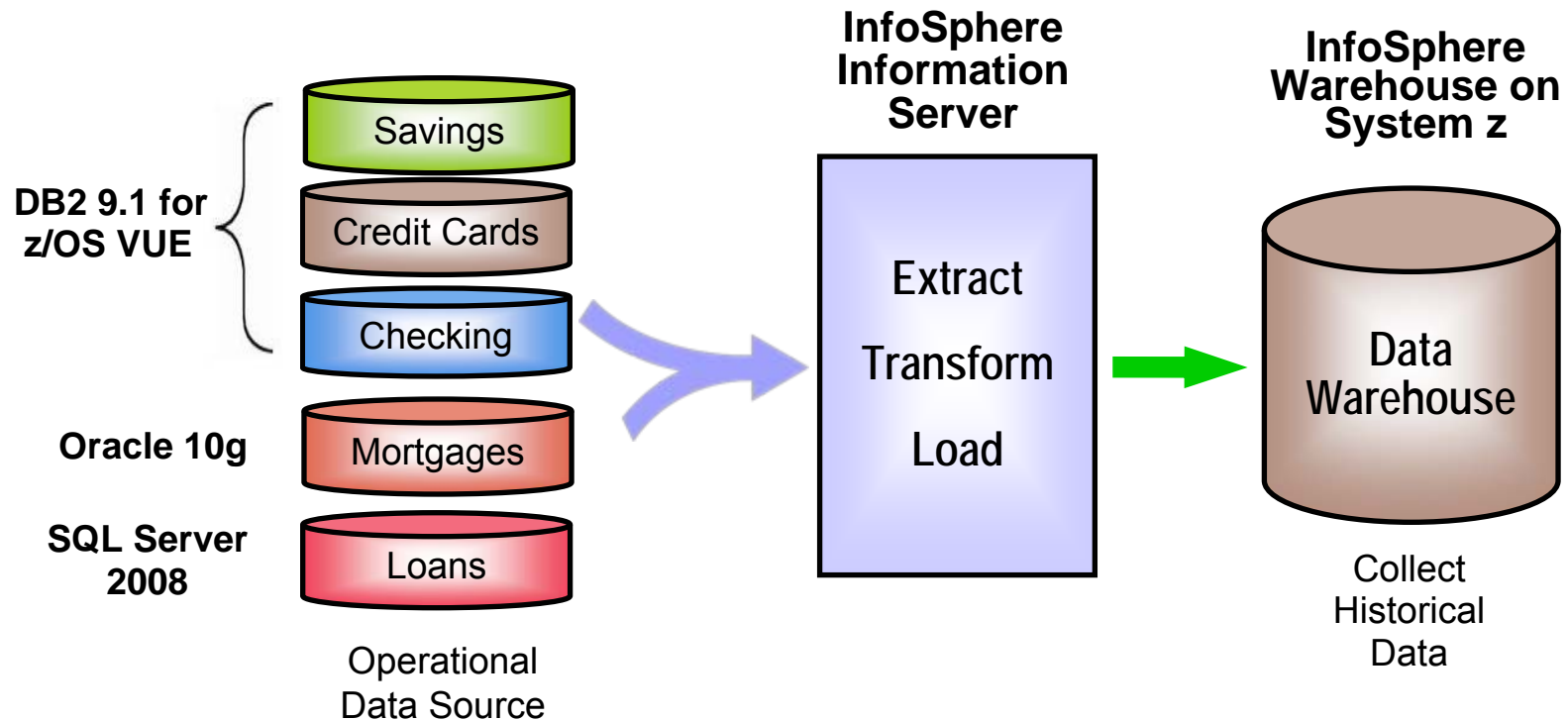
### Administration Services



### Deployment Services



# InfoSphere Information Server Can Load Your Data Warehouse



# Extract, Transform, And Load (ETL) Jobs

## Map Data From Sources To Targets

### A few simple examples:

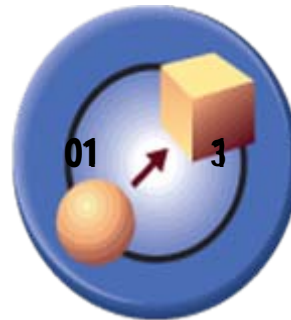
- Mapping source columns to targets
- Different column names and order
- Generating new column values
- Converting data types and formats



PROD ID	CUST ID	SOURCE ID	QTY	BAL	SALEDATE
000 101	100	01	1	\$10,000.00	2007-02-28
000 121	100	01	3	\$500.50	2007-02-28
000 102	101	01	1	\$ 20,000.00	2007-03-01

Target: Data Warehouse

000 101 100



Transform

01 3 \$20,500.50 2007-02-28

PRODUCT	QTY	CUSTNO	BALANCE	DATE
101	01	100	10000	02-28-2007
121	03	100	500.50	02-28-2007
102	01	100	20000	03-01-2007

Source: Operational Data

**A successful data integration project requires a detailed specification for the business goals and technical requirements!**

# InfoSphere FastTrack Creates Data Maps And Specifications For Your Data Integration Projects

- Create simplified data maps and transformations using drag and drop
  - ▶ Automatically discover source and target columns
    - Uses database introspection and Web 2.0-style tagging
    - Use business terms to accurately match source to target
- Data analysts and developers share project specifications
  - ▶ Collaboration and reuse improve productivity
  - ▶ Use metadata common to all Information Server tools
  - ▶ Standard formats and centralized management for governance
    - Synchronize work across global teams
- Generate ETL code directly from job specifications
  - ▶ Reduces costs and errors in ETL job development

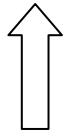
**Oracle doesn't offer any of these capabilities**

# InfoSphere FastTrack Automatically Discovers Data Mappings Using Business Term Tags

Mortgage To Warehouse Mapping Specification

Source	Target	Tag
Times_Past_Due	Credit_Events	Failure_To_Pay
Current_Balance	Ending_Balance	Period_Balance
Account_Num	Account_ID	Arrangement
Account_Holder	Customer_ID	Party_ID

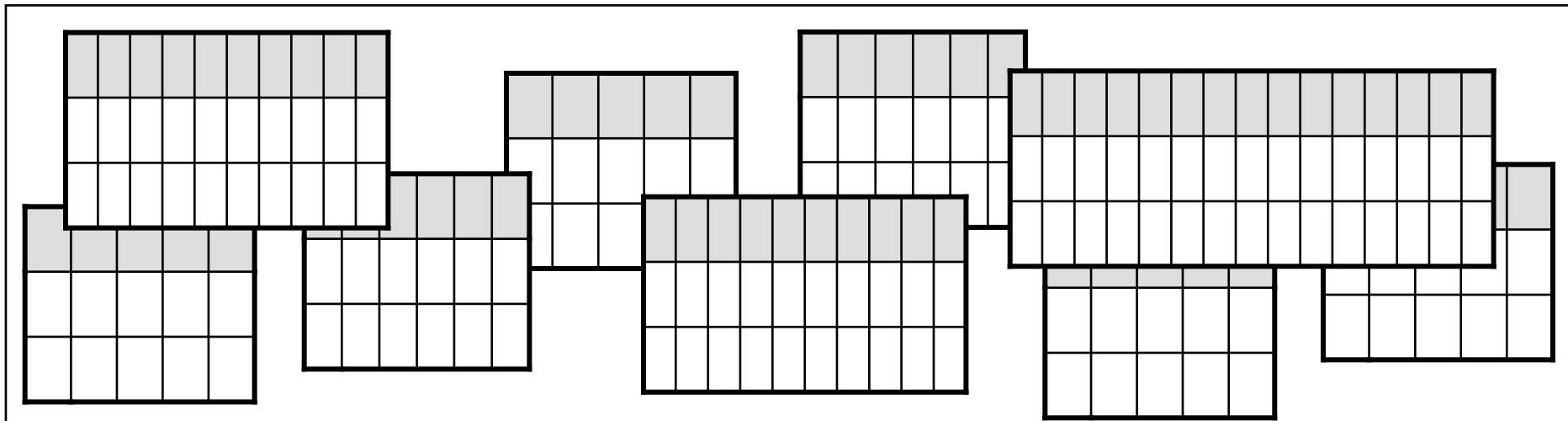
Source Discovery
Mortgage.Times_Past_Due
Checking.NSFCCount
Loans.MissedPayments



Metadata From Information Server

Tags come from:

- Industry data models
- Your corporate standards



# DEMO: Use InfoSphere FastTrack To Create ETL Specification For Warehouse

- Use discovery feature to find source columns matching business term tags
- Generate ETL job for InfoSphere DataStage

The screenshot displays the IBM Information Server FastTrack interface. The main window is titled 'LoadMortgageFact' and shows a 'Mapping Editor' with 'Source' and 'Target' columns. The 'Source' column lists 'SOF\_MORTGAGE.CURRENT\_BALANCE', 'SOF\_MORTGAGE.ACCOUNT\_ID', and 'SOF\_MORTGAGE.ACCOUNT\_HOLDER\_ID'. The 'Target' column lists 'BALANCE\_SNAPSHOT\_FACT.CREDIT\_EVENTS', 'BALANCE\_SNAPSHOT\_FACT.ENDING\_BALANCE', 'BALANCE\_SNAPSHOT\_FACT.ACCOUNT\_ID', 'BALANCE\_SNAPSHOT\_FACT.CUSTOMER\_ID', 'BALANCE\_SNAPSHOT\_FACT.BRANCH\_ID', and 'BALANCE\_SNAPSHOT\_FACT.DATE\_ID'. A 'Business Term' column lists 'FAILURE TO PAY [WBG]', 'PERIOD BALANCE [WBG]', 'ARRANGEMENT IDENTIFIER [WBG]', 'INVOLVED PARTY IDENTIFIER [WBG]', 'BUILDING IDENTIFIER [WBG]', and 'STATUS DATE [WBG]'. A 'Discover' tab is active, showing a table of discovered source columns. A 'Match Details' dialog box is open, showing a match between 'FAILURE TO PAY -> TIMES\_PAST\_DUE' with a score of 100%. The 'Properties' panel on the right shows details for the 'TIMES\_PAST\_DUE' column, including its data type (Double), position (18), nullability (true), length (8), precision (8), and cardinality type (Not Constrained).

Name	Score %	Data Type	Related
ZLNXPCK.SOFIOD.FISHING.BALANCE_SNAPSHOT_FACT.CREDIT_EVENTS	100	Integer	true
ZLNXPCK.Oracle Mortgages.INST1.SOF_MORTGAGE.TIMES_PAST_DUE	100	Double	true

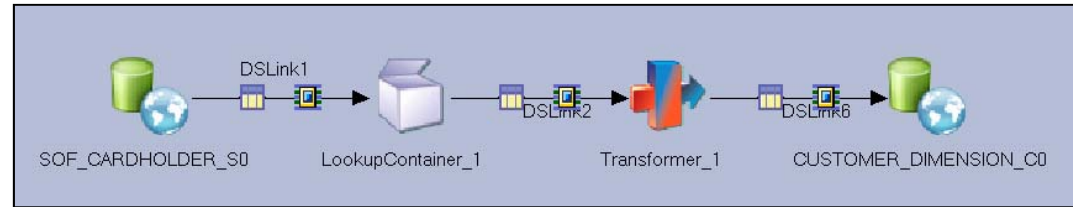
Table or Column	Data Type
CITY	[Char]
CURRENT_BALANCE	[Decimal]
INT_RATE	[Decimal]
JOINT_ACCOUNT_HOLDER	[Char]
MONTHLY_PAYMENT	[Decimal]
NAME	[Char]
ORIG_AMOUNT	[Decimal]
ORIG_DATE	[Timestamp]
SOURCE	[Char]
SS_NUM	[Char]
STATE	[Char]
TERM_YEARS	[Double]
<b>TIMES_PAST_DUE</b>	<b>[Double]</b>
ZIP	[Double]
ZIP_FOUR	[Double]

Property	Value
Name Alias	
Data Type	Double
Position	18
Nullability	true
Length	8
Precision	8
Scale	
Cardinality Type	Not Constrained



# InfoSphere DataStage Creates The Technical Implementation Of Data Integration Jobs

- Creates graphical data integration jobs using hundreds of pre-built transformation and data quality functions
  - ▶ Batch & real-time operations
- Stores and retrieves metadata from Information Server
  - ▶ Allows easy reuse of integration work between projects
- Advanced parallel processing capabilities
  - ▶ Dynamic partitioning and pipelining
  - ▶ Scale jobs across additional hardware without modification
- Easily deploy data integration jobs as services for SOA



Database				
Classic Federation	DB2 UDB API	DB2/UDB Enterprise	DB2Z	Dynamic RDBMS
Informix CLI	iWay Enterprise	ODBC	Oracle Enterprise	Stored Procedure

Processing			
Aggregator	Change Apply	Change Capture	Compare
Compress	Copy	Decode	Difference
Encode	Expand	External Filter	Filter
FTP Enterprise	Funnel	Generic	Join
Lookup	Merge	Modify	Pivot
Remove Duplicates	Slowly Changing Dimension	Sort	Surrogate Key Generator
Switch	Transformer		

Real Time			
Java Client	Java Transformer	Web Services Client	Web Services Transformer
WebSphere MQ Connector	WISD Input	WISD Output	XML Input
XML Output	XML Transformer		

# IBM InfoSphere Information Server Connects To Almost All Sources Of Data

## RDBMS

DB2 (on z, I, P or X series)  
Oracle  
Informix (IDS and XPS)  
Ingres  
MySQL  
Netezza  
Progress  
RDB  
RedBrick  
SQL/DS  
SQL Server  
Sybase (ASE and IQ)  
Teradata  
Universe  
UniData  
NonStopSQL  
And more.....



Offering more  
connectivity  
than Oracle

## General Access

Sequential File  
Complex Flat File  
File / Data Sets  
Named Pipe  
FTP  
Compressed / Encoded Data  
External Command Call  
Parallel/wrapped 3<sup>rd</sup> party apps  
EMC InfoMover  
Web logs  
Unstructured: e-mail, docs, etc.  
Content Management Systems  
Life Sciences



## Enterprise Applications

JDE/PeopleSoft EnterpriseOne  
Oracle Applications  
PeopleSoft Enterprise  
SAS  
SAP R/3 and BI  
SAP XI  
Siebel  
JDA  
Ariba  
Manugistics  
I2  
And more...



## Standards and Real Time

WebSphere MQ  
Java Messaging Services (JMS)  
Java  
XML and XSL-T  
EBXML  
Web Services (SOAP)  
Enterprise Java Beans (EJB)  
EDI  
FIX  
SWIFT  
HIPAA



## CDC / Replication

DB2 (on z, I, P, X series)  
Oracle  
SQL Server  
Sybase  
Informix  
IMS  
VSAM  
ADABAS  
IDMS  
NonStopSQL  
Enscribe

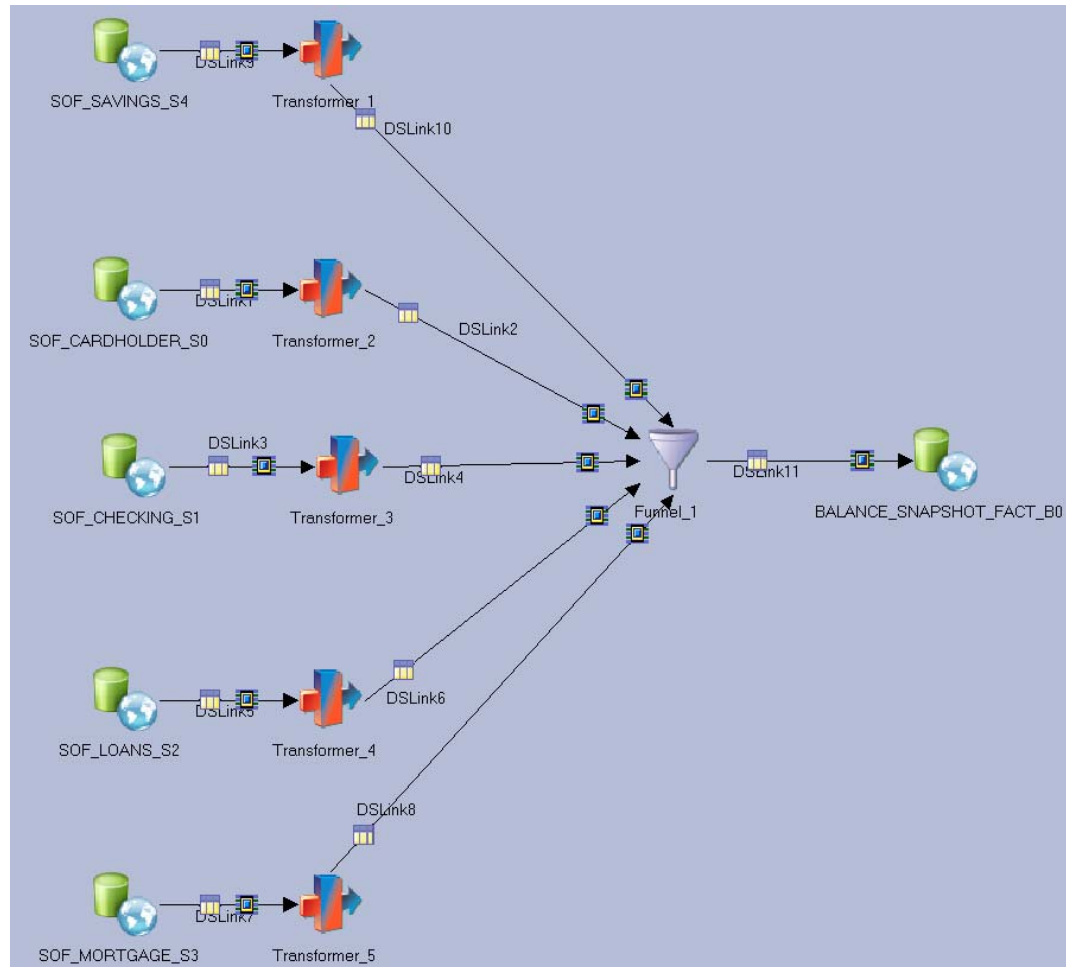
## Legacy

Allbase/SQL  
C-ISAM  
D-ISAM  
Datacom/DB  
DS Mumps  
Enscribe  
Essbase  
FOCUS  
IDMS/SQL  
ImageSQL  
Infoman  
KSAM  
M204  
MS Analysis  
Nomad  
Nucleus  
RMS S2000  
Supra  
TOTAL  
TurboImage  
Unify  
And many more....



# DEMO: Use InfoSphere DataStage To Load The Data Warehouse

1. Show the DataStage ETL job generated by FastTrack
2. Run the DataStage Job to populate the data warehouse fact table



# IBM Leads In Data Integration

- Only InfoSphere Information Server delivers unified metadata across all tools for collaboration and reuse
  - ▶ Oracle has no integration of metadata across products
  - ▶ Manual import/export required
- Model-driven design with FastTrack and DataStage speeds development
  - ▶ Oracle has no tools to help manage source to target mappings
- InfoSphere Information Server works in heterogeneous environments
  - ▶ InfoSphere gathers, processes, and cleanses more data from more sources than Oracle

"FastTrack enables our analysts to **capture more complete business requirements**. The ability to translate this information directly into DataStage jobs with up to 70 percent of the code completed will **significantly shorten our development lifecycle**."

*- Roderich Hofmann, project manager, WAVE, IT-Solutions provider of Bank Austria and member of UniCredit Group*

# Using New Intelligence Creates New Business Opportunities

If we can identify our risky mortgage assets, we can work to remove them from our books



**Service Oriented Finance  
CEO**

We can identify risky mortgage customers by watching their activities in other business areas

- ▶ Bounced Checks
- ▶ Missed Credit Card Payments
- ▶ Missed loan payments



**Mortgage Line of Business  
VP**

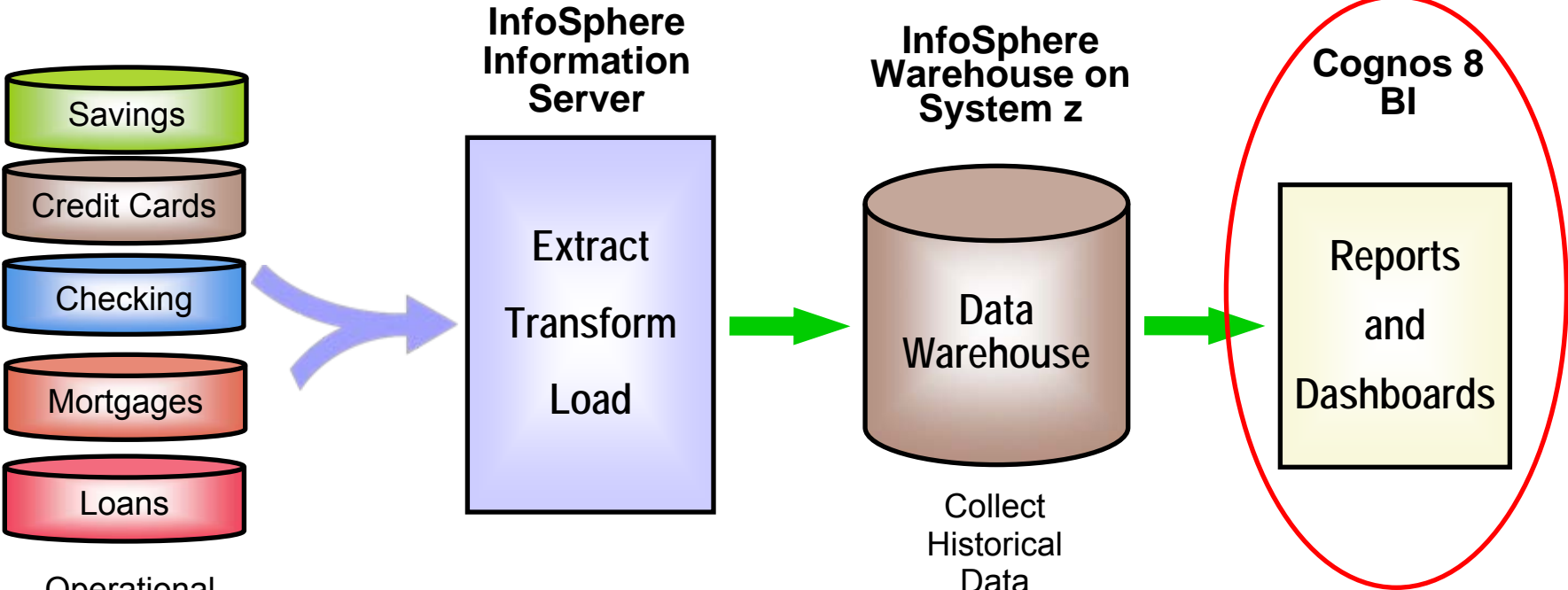
# Create New Intelligence With IBM Cognos

Now that you have a data warehouse, you can create this new intelligence using IBM Cognos 8 BI



**IBM**

# Use IBM Cognos 8 BI To Optimize Business Decisions



ETL Processing

Business Intelligence

Connections

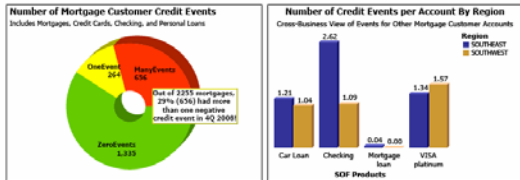
Scalable Database

# DEMO: Identify Risky Mortgage Accounts Using Cognos 8 BI

1. Show report generated in Cognos Report Studio in PDF format
2. Report identifies high-risk mortgages by looking at negative credit events in customers other SOF accounts (CC, Checking, etc...)
3. Report uses both structured and unstructured data (link to mortgage data stored in FileNet)



**Identifying At-Risk Mortgages Using Credit Event Data from Across the SOF Business**  
 Many SOF mortgage account holders also hold SOF credit cards, checking accounts, and personal loans. This is a report of negative credit events in non-mortgage accounts belonging to current SOF mortgage holders. A credit event is any non-payment of a balance due. Checking account credit events are Insufficient Fund (ISF) events ("bounced checks").



4Q 2008 Mortgage Customer Detail by Region and State  
 Colors: Credit events numbers are color coded. Accounts with greater than 8 events are shown in **link red**.  
 Link: Customer ID link opens customer's mortgage document folder using FileNet Workplace XT. Authentication required.

Region: SOUTHEAST		State: FL		Checking		VISA platinum		Car Loan		Mortgage loan		Summary	
Customer ID	Customer Name	Negative Credit Events	Current Balance	Negative Credit Events	Current Balance	Negative Credit Events	Current Balance	Negative Credit Events	Current Balance	Negative Credit Events	Current Balance	Negative Credit Events	Current Balance
2004	Herman Miller	11	\$1,453.06	2	\$805.48	2	\$24,465.55	0	\$232,285.42	17	\$289,050.71		
7928	7928	13	\$1,413.84	2	\$805.48	2	\$24,465.55	0	\$232,285.42	12	\$289,050.71		
2005	Julia P. Lammiman	4	\$1,261.57	2	\$891.89	2	\$52,120.40	0	\$722,748.89	8	\$777,613.71		
7940	7940	4	\$1,251.57	2	\$891.89	2	\$52,120.40	0	\$722,748.89	8	\$777,613.71		
2006	Kelly O. Mendenhall	4	\$1,127.24	2	\$844.82	2	\$74,670.88	0	\$323,366.59	8	\$400,068.65		
8044	8044	4	\$1,127.24	2	\$844.82	2	\$74,670.88	0	\$323,366.59	8	\$400,068.65		
2008	Shad I Davis	4	\$780.11	2	\$530.11	2	\$43,230.00	0	\$919,075.43	8	\$843,813.65		

That report is just what we need!



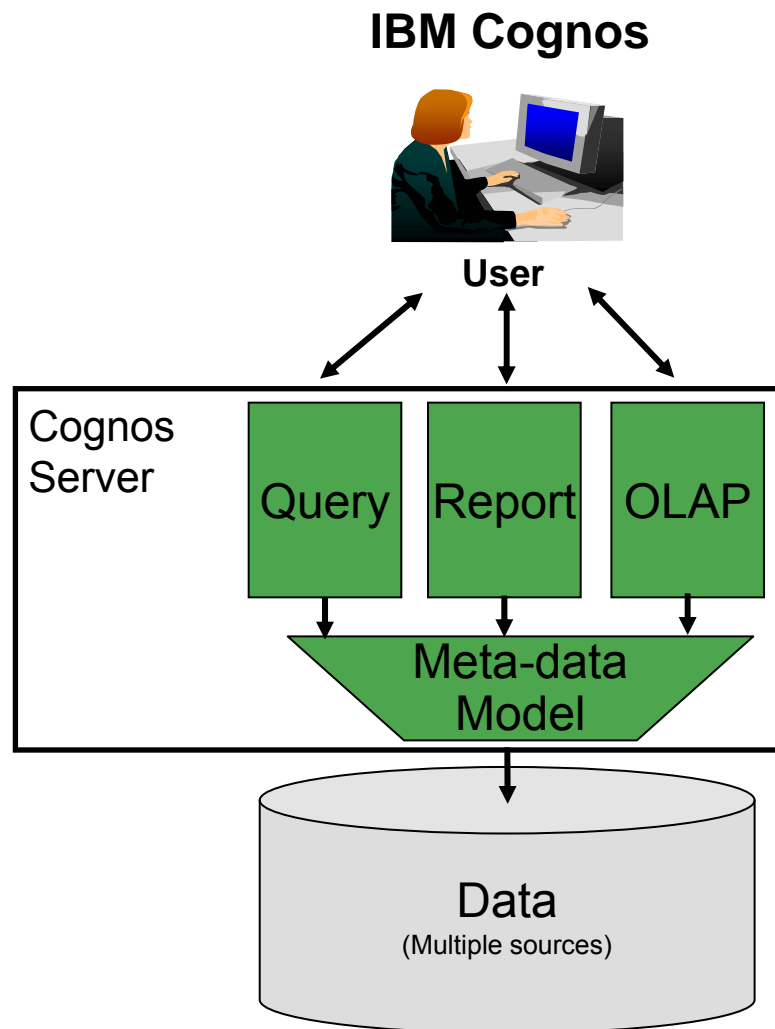
Mortgage Line of Business VP

- At risk customers are identified and contacted to refinance
- Risky mortgages can be sold



# IBM Cognos Is An Integrated Platform Built On SOA

- Implemented in Java, runs on WebSphere
- 100% browser based access
  - ▶ Server side business intelligence
  - ▶ Users can access new intelligence from anywhere
- Easiest for IT to deploy and manage
  - ▶ Scales up and out across heterogeneous hardware and operating systems
  - ▶ Unified security
  - ▶ Unified administration
- Consistent user interface across tooling
  - ▶ Greater user satisfaction and increased business agility with lower IT costs
- Common meta data model
  - ▶ Author new intelligence assets once, consume anywhere
  - ▶ Common view enables open data strategy
  - ▶ Supports Unicode and multilingual features without recreating reports

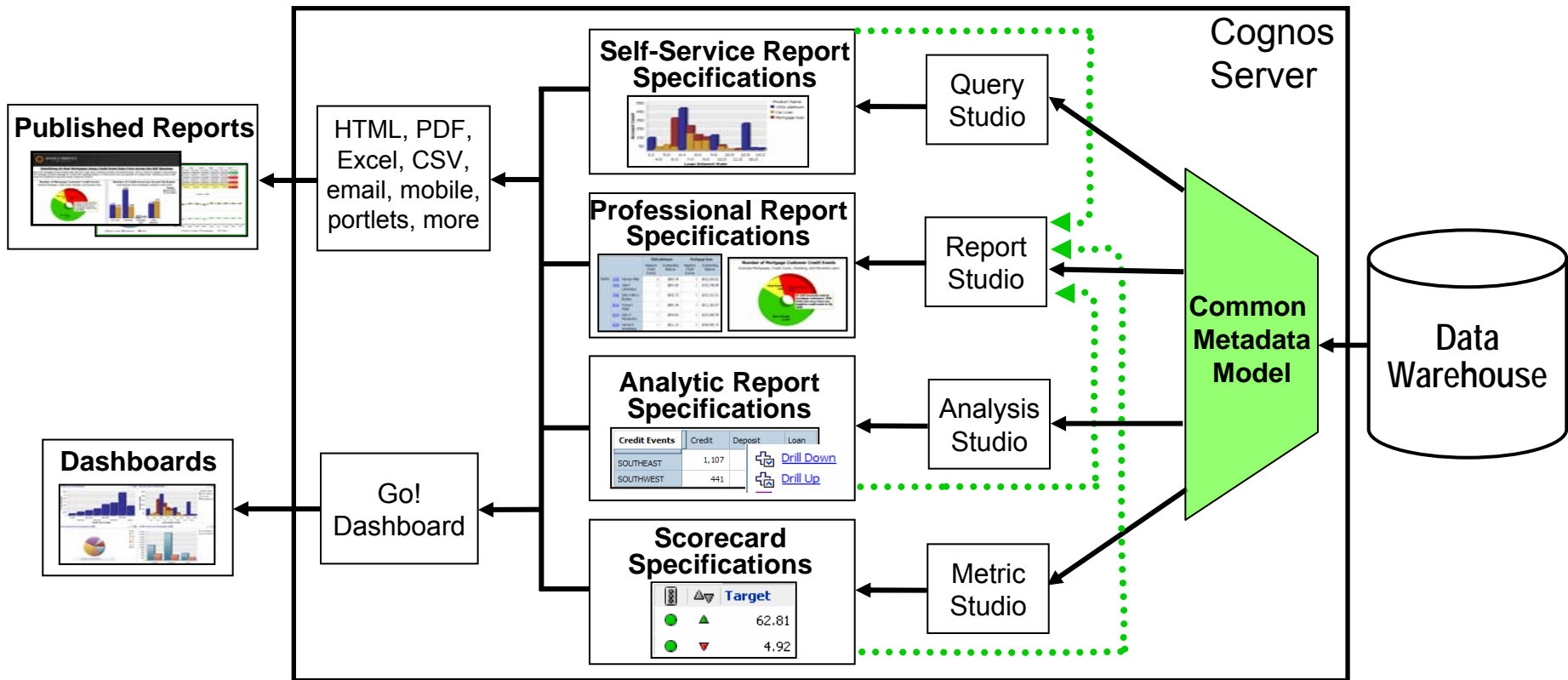


■ IBM Cognos

# Users Can Create The Reports They Need Using Cognos 8 BI

- Query Studio is an easy to learn self-service reporting tool requiring minimal reporting knowledge
  - ▶ Helps alleviate report authoring backlog
  - ▶ Use existing self-service reports to create a new report
  - ▶ Modify the style and layout of self-service reports
  
- Report Studio is a professional reporting tool to create any style of report
  - ▶ Invoices, financial statements, inventory, payroll, etc
  - ▶ Provides “pixel-perfect” formatting with absolute control over visual layout
  - ▶ Library of lists, crosstabs, charts, maps, operators, constants, functions, filters, more

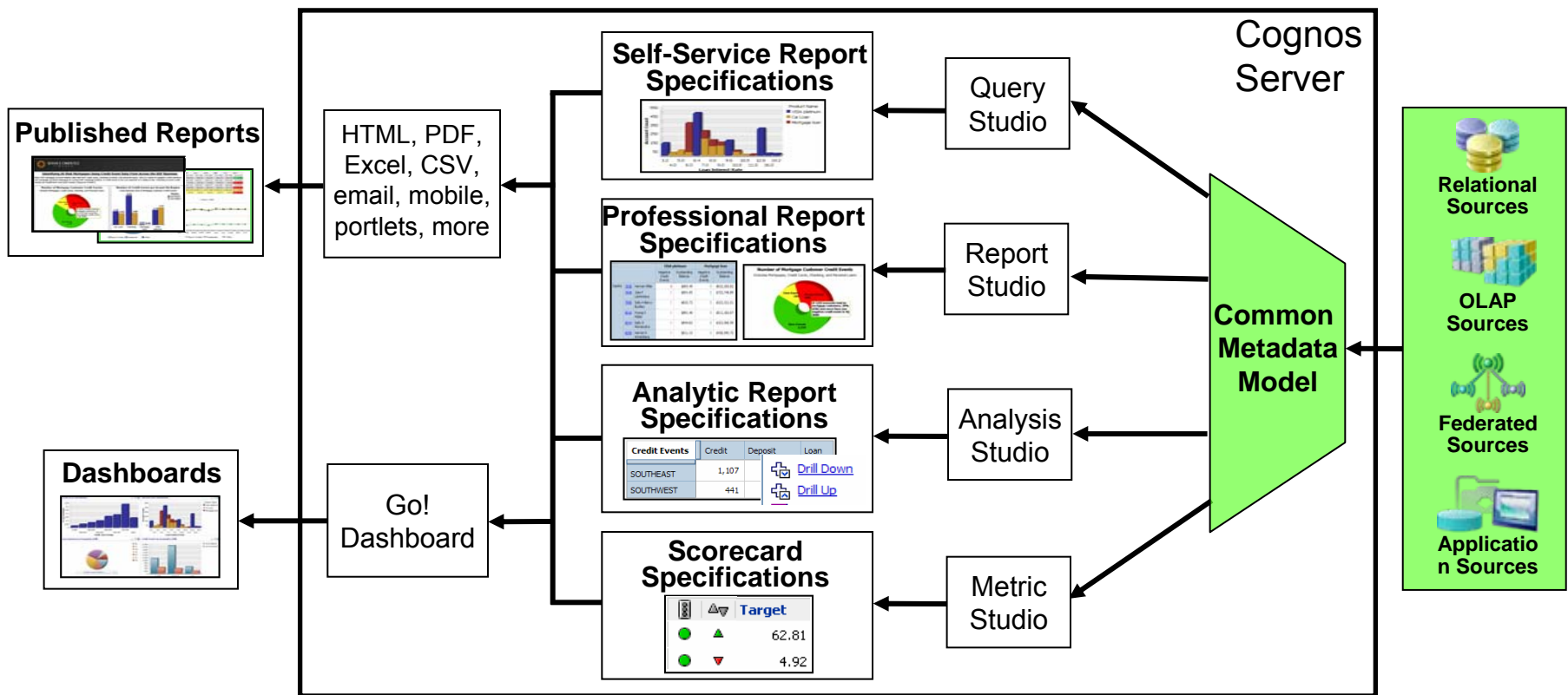
# Reuse Trusted New Intelligence Assets Across the Cognos 8 Platform



- All new intelligence assets share a common metadata model and common report specification
- Author Once – Consume Anywhere
- Ensures consistent information and enables reuse across platform functions

- Oracle has multiple metadata models depending on source type
- Oracle has multiple different report formats
- Oracle cannot reuse assets between tools

# Include Any Data Source In Your New Intelligence With the Cognos 8 Platform

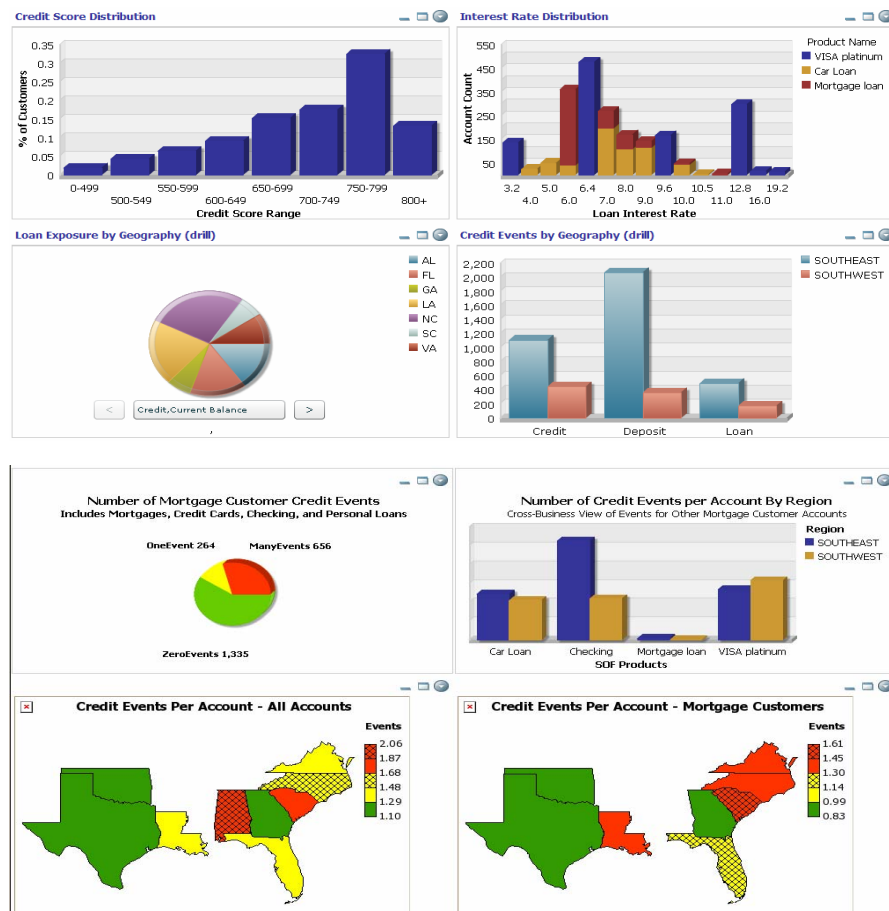


- Open data strategy enables a common view across a variety of data sources
- Support for application data sources such as SAP ERP
- Combine relational, OLAP, federated, and other data sources in any tool

- All capabilities access a trusted set of information defined in the common metadata model
- As sources change, metadata model can control and identify impacts to report specifications

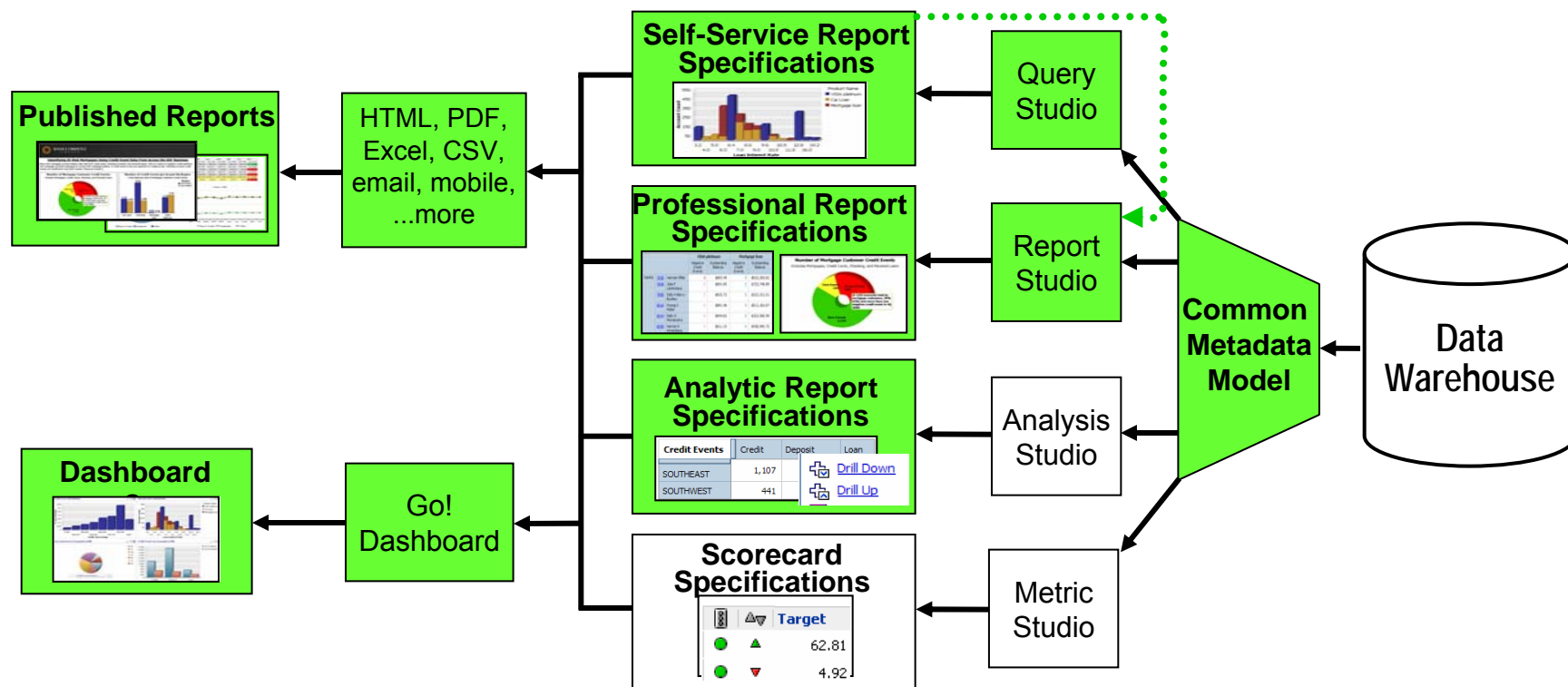
# Cognos Go! Dashboard Enables You To Monitor Business Operations

- Cognos report specifications can be incorporated into dashboards using Cognos 8 Go! Dashboards
- What goes into a dashboard?
  - ▶ Self service reports
  - ▶ Professional reports
  - ▶ Analytical reports
  - ▶ Scorecards
  - ▶ RSS feeds, HTML, search, more
- Users can create their own dashboards from existing Cognos report assets
- Everything you need to monitor a particular aspect of the business
- Information from several different subjects areas presented at the same time
- Provides dynamic and visually appealing capabilities by using Adobe Flash
  - ▶ Everything runs in a browser – only Adobe Flash is required
  - ▶ Easily change chart types and color palettes



# DEMO: Gain Business Insight Through IBM Cognos 8 BI

- Use Go! Dashboard to quickly monitor the business operations
- Use Cognos Query Studio to customize an existing report
- Open Cognos Report Studio and add a chart to the report



# Oracle Business Intelligence Enterprise Edition Is A Complicated Bundle

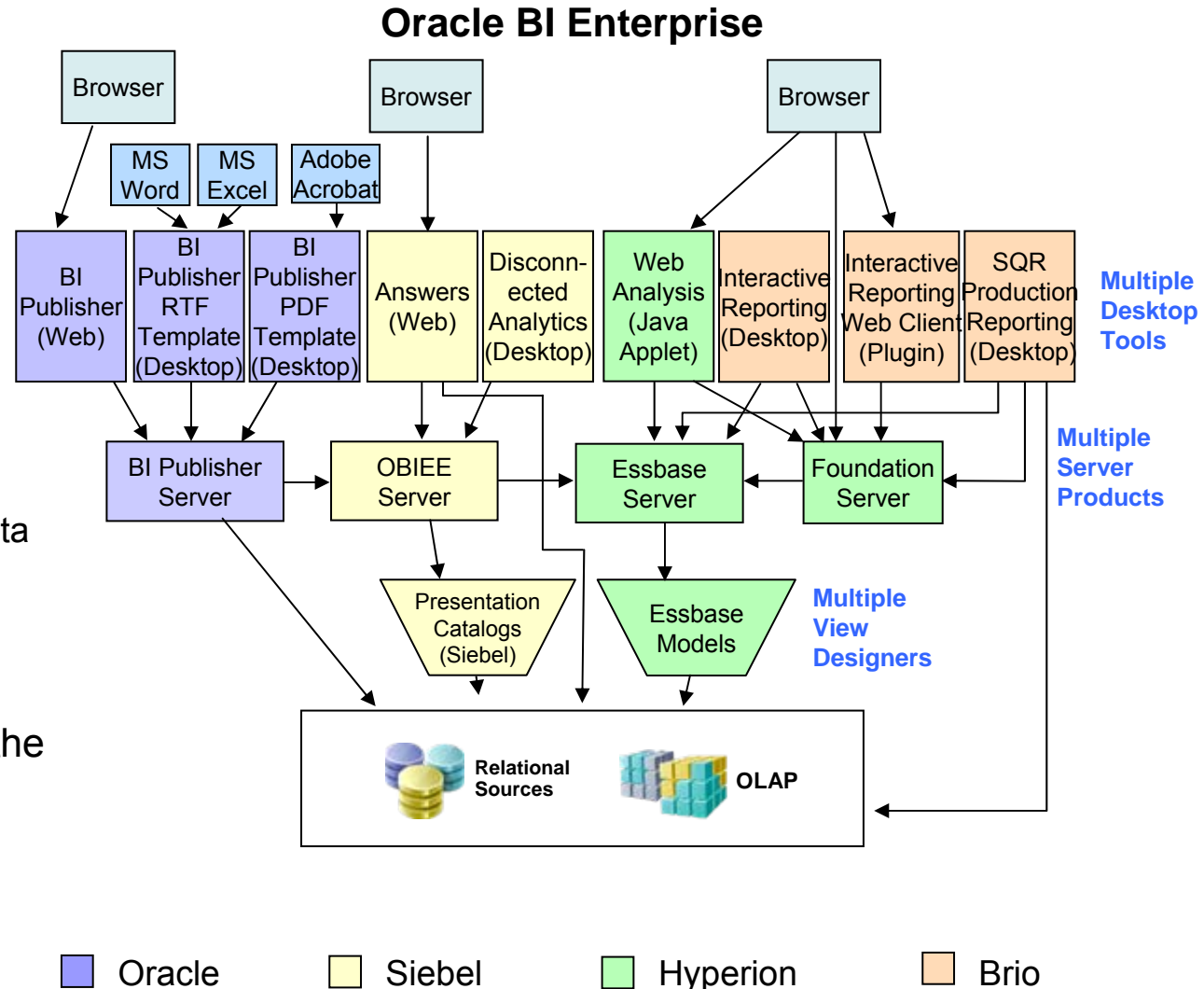
## Too Many Products!

## Multiple Desktop Client Tools

- ▶ Multiple report formats
- ▶ Multiple metadata models
- ▶ Creates More work
- ▶ Report specifications cannot be shared or reused easily
  - No common meta data model

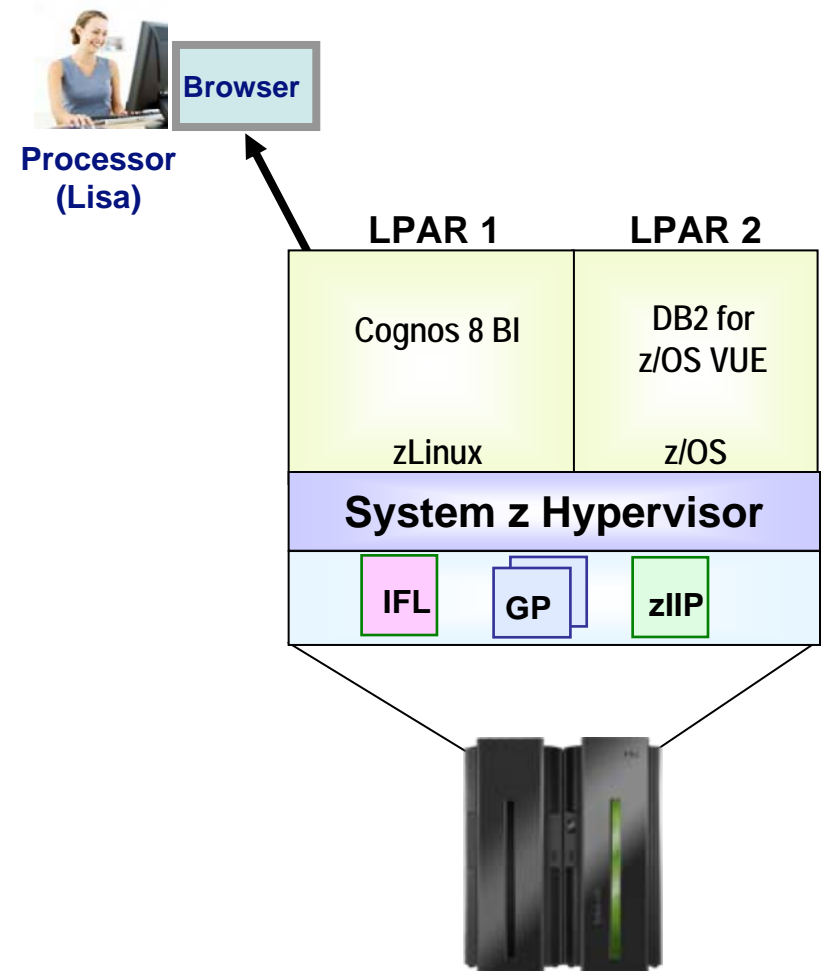
## Creates IT Burden

- ▶ Install, Patch, User Support all happen at the desktop



# IBM Proof Of Concept To Demonstrate Data Warehouse Scalability

- Enterprise Data Warehouse
  - ▶ 50 TB Raw Data
  - ▶ 300 BILLION row table
- Hardware-assisted compression for data and indexes
  - ▶ Up to 63% savings on data
  - ▶ Up to 61% savings on indexes
- System z TCO exploits
  - ▶ zIIPs
  - ▶ IFLs
  - ▶ ICFs
- Best of Breed virtualization
- Best of Breed QoS





# Case Study: Deploy New 10TB Data Warehouse On z/OS With Disaster Recovery (Cognos Base Function)

*Existing Mainframe*



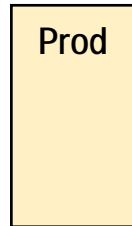
Existing z10:  
2 GP 1,720 MIPS  
DB2 and utilities  
With 20Tb storage

*Existing Disaster Recovery Site*



Existing:  
1 GP processor for hot disaster switch-over  
1 "dark" DR processor  
With 20Tb storage

*Add 1 LPAR for New Data Warehouse w 3.8 TB Storage*

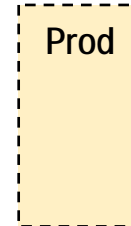


2,184 MIPS additional workload on z/OS and 1,840 MIPS on zLinux

Incremental:

2 GP 1,310 MIPS (60%) DB2 & Utilities  
1 zIIP 874 MIPS (40%) DB2  
1 IFL 920 MIPS DataStage  
1 IFL 920 MIPS Cognos  
Add 10 GB memory

*And add Disaster Recovery w 3.8 TB Storage*

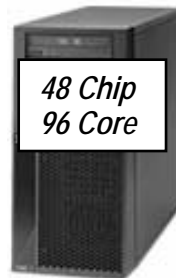


3 year cost of acquisition \$5.71M

Capacity Backup:  
2 GP  
1 zIIP  
2 IFLs

*Or add HP Integrity Superdome sx2k 9150N Server w 7.3 TB storage*

Prod

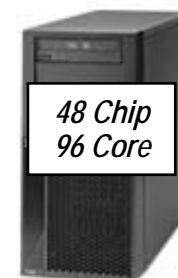


48 Chip  
96 Core

350,299\*  
Performance Units

*And add Disaster Recovery W 7.3 TB storage*

Prod



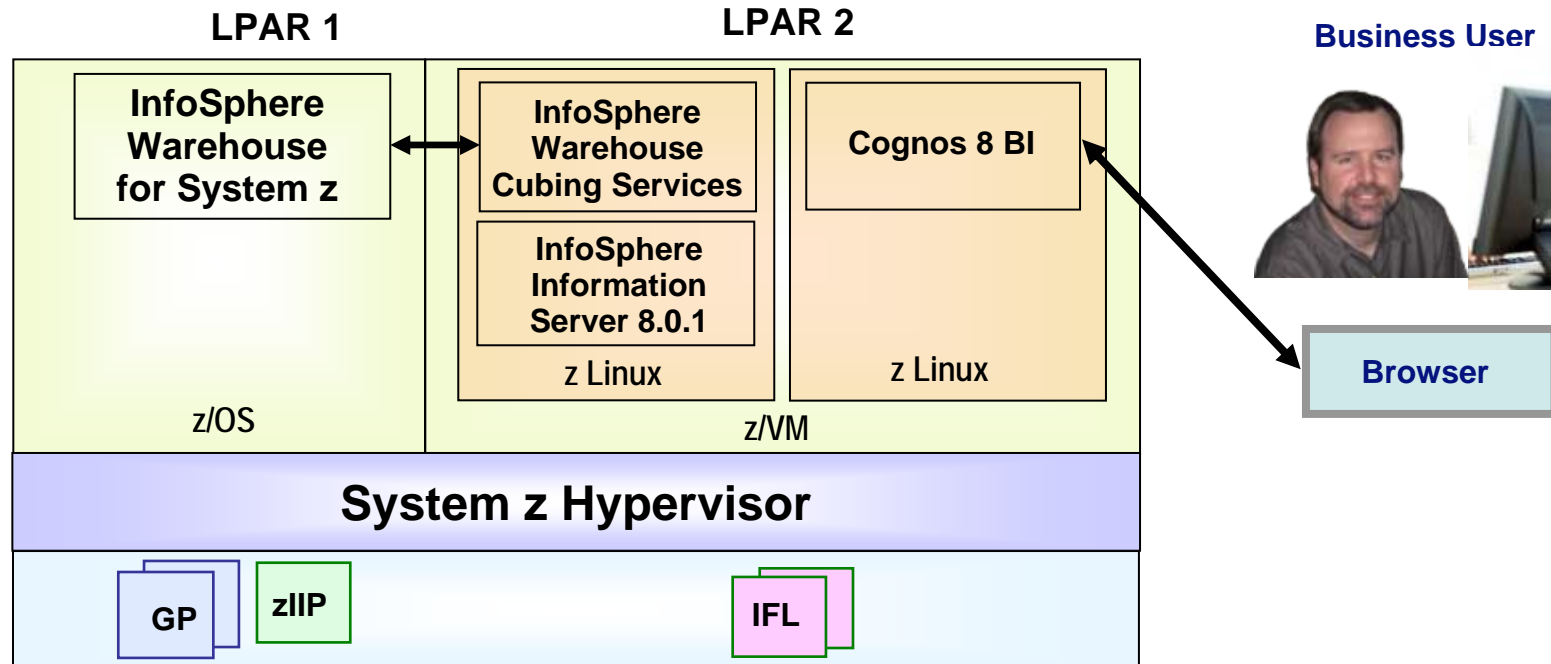
48 Chip  
96 Core

350,299\*  
Performance Units

3 year cost of acquisition \$24.98M

\*Production Performance Units required = (2,184+1840) MIPS x 87 = 350,088

# System z Provides A Comprehensive BI Solution



## System z Offerings for Enterprise Data Warehouse and BI:

- InfoSphere Warehouse for System z
- InfoSphere Information Server for System z
- IBM Cognos 8 BI for System z
- Only IBM can provide an end to end Platform DW and BI Solution

# IBM vs. Oracle Business Optimization

	<b>IBM</b>	<b>Oracle</b>
Extensive Enterprise Connectivity	<b>InfoSphere Information Server</b>	<b>Oracle-focused</b>
Enterprise Scalability	<b>InfoSphere Information Server</b>	<b>Waiting for Fusion</b>
Integrated, Comprehensive Performance Management Platform	<b>IBM Cognos</b>	<b>NO</b> Multiple products (Oracle, Hyperion, Siebel) with different metadata models
Common metadata model	<b>IBM Cognos</b>	<b>NO</b> Multiple separate metadata strategies
100% web-based zero footprint BI	<b>IBM Cognos</b>	<b>NO</b> BI Publisher uses MS Word, Many BI functions require desktop apps and plug-ins